ENERGY NEWS

A quarterly publication of the Naval Facilities Engineering Service Center, Energy and Utilities Department

ESC's Electronic Facilities Division Moves to ESC20

As of Oct 1st, ESC's Electronic Facilities Division is now part of ESC's Energy and Utilities Department.

This move aligns our experts in electronic and communications facilities, power systems, electronic facility design and operations, and specialized equipment provision with the department's existing electrical and utility-oriented specialists.

The Electronic Facilities Division provides:

* ***Environmental Control***
* ***Generators***
* ***Power Conditioners***
* ***HEMP Shielding Devices***
* ***Test Instruments***
* ***Transformers***
* ***Un-interruptible Power Supplies***
* ***Equipment Maintenance and Repair***
* ***Transient Voltage Surge Suppression Devices***

The Electronic Facilities Division is located at ESC's East Coast Detachment in the Washington Navy Yard. For more information, contact:

Joe Nestico

Electronic Facilities Division Director

(202) 433-2208, DSN 288-2208, or nesticojf@nfesc.navy.mil.

Water Leak Detection Surveys

NFESC Survey Team Detects Leaks for Customers Worldwide

Even a small leak can cost a significant amount of money if left unattended. ***A loss of more than 150 gallons per minute can result from a 1-inch diameter hole at a pressure of 40 psi.*** This type of leak could cost more than ***$100K*** a year, assuming water costs of $1.50 per 1,000 gallons.

ESC's survey team can locate underground leaks within a couple of feet of the actual leak, depending upon the size of the leak.

Leak detected on an 8-inch ACP Coupling, forming a sizable cavity under the road at Hickam AFB in 1997.

Surveys have been performed worldwide for Navy, Army, and Air Force customers throughout DOD. *Locating unseen water leaks has saved these facilities precious water resources as well as many thousands of dollars!*

Two options for water leak detection are offered:

Option I - Acoustic Survey

An acoustic survey is the least expensive option and also the quickest. This survey is conducted by listening to all accessible points such as hydrants, valves, meters, and exposed pipes on the water distribution system. Limitations of this method involve the number of access points and ambient noise levels.

Option II - Acoustic Survey Plus Metering

Temporary meters are placed at key locations to determine a 24-hour profile of the water use on the main lines and minimum flow to the area in question. If the minimum flow is abnormally high, valves may be closed to isolate sections of pipe in order to locate problem areas. Meters are also used on parts of the system inaccessible to survey by acoustic equipment. These meters are non-intrusive and work well on all metallic and plastic pipes, but are not applicable on asbestos-cement or concrete pipes.

The ESC survey team recommends Option II to ensure the best results. For more information, contact Maria Z. Smith at (805) 982-6072, DSN 551-6072, or smithmz@nfesc.navy.mil.

INSIDE

*Naval Activity Energy Consumption for Jul 98 - Jun 99 (3rd Qtr FY99)**

Includes Housing and Shore for Navy and Marine Corps Activities; excludes Government Owned/Contractor Operated (GOCO), Cold Iron, Transmitter, Simulator and Miscellaneous Support

Energy Type	MBtu Consumed		Change From FY85 (%)	By Energy Type (%)
	Jul 98 - Jun 99	FY85**		
Electricity	29,747,390	29,172,254	1.97	46.34
Fuel Oils	9,284,264	26,995,765	-65.61	14.46
Natural Gas	20,414,996	25,591,226	-20.23	31.80
Propane Gas	215,635	314,986	-31.54	0.34
Coal	2,522,133	4,106,710	-38.59	3.93
Steam & Hot Water	1,103,271	1,288,378	-14.37	1.72
Residual	813,470	1,240,804	-34.44	1.26
Distillate	59,294	63,408	-6.49	1.27
Reclaimed Oil	32,603	244,430	-86.66	0.05
Total (12 Months)	**64,193,056**	**89,017,961**	**-26.53%**	**100.00%**
Navy and Marine Corps (ksf)	596,236	630,010	-5.36%	
Navy and Marine Corps (MBtu/ksf)	107.66	141.30	-23.80%	
Navy Shore and Housing (MBtu/ksf)	112.83	150.07	-24.82%	

* The interim energy reduction goal for the end of June 99 is -20.63% below FY85 consumption. The percentage is derived by straight line interpolation of the 30% decrease per gross square foot from FY85 to FY2005. ** These FY85 figures incorporate all corrections approved to date.

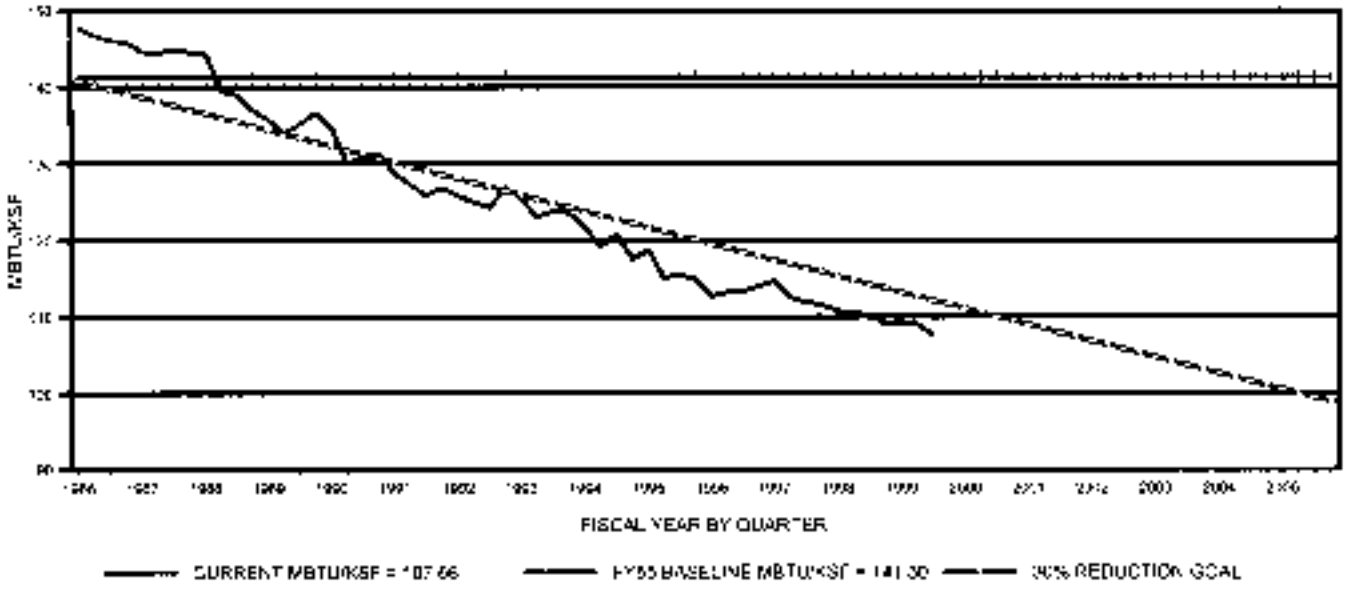
ENERGY REDUCTION PROGRESS

2005 GOAL=30% REDUCTION

3RD QUARTER FY 99 (JUL 98 - JUN 99)

Current Progress = -23.80%

Current Quarter Goal = -20.63%



TAKE CHARGE!

Do you know that the Department of Navy shore facilities have reduced energy consumption by more than 20% since 1985?

KEEP UP THE GOOD WORK!

Meet Bruce Caldwell

Public Works Center of Expertise
Direct Digital Controls

We at ESC like to think of Bruce Caldwell as a well-rounded engineer. Bruce has been actively involved with Navy controls projects from every imaginable point of view for over ten years. *He has crept through ceilings, wiggled under air handlers, and crawled over just about any piece of mechanical equipment you can imagine*. Why all the dirt and body contortions? Because Bruce is an engineer who takes pride in getting the job done with tools as well as with calculations and drawings.

Bruce recently took over responsibility of running the Naval Public Works Center of Expertise for Direct Digital Controls (DDC). He and his ESC team review, design, program, and install DDC projects worldwide. Bruce eagerly does whatever he can to make sure that facility managers and occupants get reliable environmental controls that keep them comfortable and are worth the expense.

Bruce's main task this year was to rewrite the Naval Facilities Guide Specification for Direct Digital Controls. Another project he is proud of is the design and programming that he and a teammate, Robert Schoff, completed for a groundwater pumping and treatment plant at Whidbey Island, Washington. They are looking forward to a successful installation in October. Bruce feels that the knowledge they've gained will allow his team to diversify into other fields of industrial control.

Of course, Bruce likes to think of himself as more than just a controls engineer. After five years of practice, he is consistently keeping a tennis ball in play and having great fun doing so. Most of all, he enjoys the time he spends with his wife, Rebecca, and their sons - Holden, 3 and Mitchell, 1. They keep everything in perspective!

To contact Bruce for answers to your questions or to discuss your projects call: (805) 982-3520, DSN 551-3520, or email: caldwellba@nfesc.navy.mil.

ENERGY PROJECTS UPDATE

DSM & ESPC

Financing of energy projects through Demand Side Management (DSM) and Energy Savings Performance Contracting (ESPC) continues to grow each quarter!

The latest Executive Order (EO 13123) increased our energy reduction goal from 30% by 2005 to a ***New Goal of 35% reduction by 2010,*** *and prescribes DSM and ESPC as the tools of choice to reach the new goal.*

If you are not yet on board with a DSM or ESPC program, contact your local EFD or the DON ESPC Team today!

INCENTIVES

The entire ***$8.5 million*** authorized for ***incentives*** has been obligated toward DSM and ESPC contracts. ***Twenty-four activities received funding during this fiscal year.***

ECIP

We achieved a 100% execution of our ***$16 million*** FY1999 ECIP Program! *Unfortunately, the ECIP Program has been cancelled for FY2000.* ***Just one more reason to enter into a DSM or ESPC agreement!*** Hopefully the program will be restored in FY2001.

CONTACT

***T**his is an exciting time to be involved in the energy program. A lot of projects are about to be implemented using Alternative Financing methods.*

Will your activity be included?

Contact your local EFD today for more information. ***Dave Schuelke, DON ESPC Team Leader***, can provide information on ESPC; call (805) 982-3501, DSN 551-3501, or schuelkejd@nfesc.navy.mil.

ECIP or other ***Energy Projects*** information may be obtained from ***Dan Magro, ESC222,*** (805) 982-3529, DSN 551-3529, or magrodt@nfesc.navy.mil.

Alternative Financing Report – Your Assistance is Requested

Current Presidential, DOD, and DON directives mandate consideration of Alternative Financing methods to achieve energy savings at Navy and Marine Corps installations. Due to the elimination of central funding for energy projects, *it makes good business sense to evaluate whether Demand Side Management (DSM) and Energy Savings Performance Contracts (ESPC) will work at your command.* We are preparing a report on the level of interest/application for Alternative Financing methods and we need your input. Our regular readers are aware of the features of DSM and ESPC programs. If you're one of them, please let us know if you are interested in pursuing ESPC or DSM, or currently involved with a DSM program and don't anticipate using ESPC, or are not interested in an Alternative Financing program at this time. Let us know if you need additional information regarding these programs before deciding whether to participate in an Alternative Financing program. Please send your responses to: *Dave Schuelke*, (805) 982-3501, DSN 551-3501, or schuelkejd@nfesc.navy.mil. Thank you!

Is HVAC Part of Your Energy System?

40 to 70% ***of a building's energy consumption is consumed by the heating, ventilating, and air-conditioning (HVAC) systems.*** To be effective and efficient, these systems require proper design, maintenance, operation, and control. Many Navy and Marine Corps activities have buildings with poorly performing HVAC systems. We can help analyze and correct the problems. ***ESC recommends a detailed HVAC evaluation performed by our experienced engineers and technicians.***

As NAVFAC's Public Works Specialized Technical Consultant for direct digital control (DDC), we are the central point of contact for HVAC controls in the Navy. We prepare NAVFAC's Guide Specification, NFGS 15910, "Direct Digital Control Systems," as well as design, install, and commission DDC systems. For construction projects, we provide QA through review of design specifications and drawings, control hardware submittals, and field acceptance testing. Training to EFDs, Public Works, and others in the design, installation, commissioning, acceptance testing, operation and maintenance of digital controllers is also provided.

Specific Services We Provide:

Installation Projects. DDC systems offer excellent climate control and reduced utility and maintenance costs. These systems include graphics that aid in troubleshooting and system maintenance.

For installation projects, we can evaluate existing HVAC systems, design the DDC system, procure the equipment, install and commission the system, and train local O&M personnel. Full documentation is provided, including as-built drawings and complete O&M manuals upon which the training is based. The activity is generally responsible for installing the controllers, sensors, enclosures, conduit, and wiring per the design we provide. We can remotely monitor performance of the system to ensure long term customer support. We also have experience designing and installing process control and energy monitoring systems.

Building Mechanical and Control Systems Evaluations. Our on-site team can also investigate operational problems occurring at troubled buildings.

Capabilities include testing air and liquid flows, checking for proper operation of fans and pumps, analyzing chiller systems and their controls, checking coils, valves, and damper operation, and investigating the HVAC control system. A detailed report of equipment problems and recommended corrective actions follows. Many times, if the control system is at fault, the needed corrections can also be made.

Design Reviews. Our reviews of project specifications and design drawings and our consultations with designers help to ensure proper and complete hardware designs and system performance requirements. We check to be sure design drawings are complete and will provide a system designed to properly execute the sequence of operation.

Construction QA. We often act as technical representatives for the DDC portions of construction projects. The QA we provide helps to ensure that system components meet the specifications, are properly installed, and work as specified. We can:

- Review control hardware submittals for conformance with project specifications
- Review acceptance testing procedures
- Oversee acceptance testing
- Review O&M documentation
- Oversee the training of O&M personnel

A significant part of the effort is on-site system performance verification.

Building Commissioning. Our team tests and adjusts the DDC system after acceptance of the control system. We perform an opposite-season test to verify adequate control loop response and test opposite-season sequence of operation. O&M personnel training is an integral part of this effort.

Training. DDC training is essential to ensure successful operation and maintenance of the technology. Training in the following areas is offered:

Systems Design - Training for Public Works and EFD designers emphasizes design of simple and cost effective DDC systems, tailored to NFGS 15910 requirements for complete controls drawings.

O&M - Hands-on systems O&M training.

ESC can assist you with your HVAC and DDC system questions. Contact one of the following:

BRUCE CALDWELL
DDC TECHNICAL CONSULTANT
(805) 982-3520, DSN 551-3520, or
caldwellba@nfesc.navy.mil
- or -
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ENERGY NEWS

Published By
NFESC

An unofficial publication of the
Energy and Utilities Department

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